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Related Articles

TITLE: Golgi-derived vesicles from developing epithelial cells bind actin filaments and possess myosin-I as a cytoplasmically oriented peripheral membrane protein.

AUTHORS: Fath KR; Burgess DR

AUTHOR AFFILIATION: Department of Biological Sciences, University of Pittsburgh, Pennsylvania 15260.

SOURCE: J Cell Biol 1993 Jan;120(1):117-27

CITATION IDS: PMID: 8416982 UI: 93107174

ABSTRACT: In the intestinal brush border, the mechanoenzyme myosin-I links the microvillus core actin filaments with the plasma membrane. Previous immunolocalization shows that myosin-I is associated with vesicles in mature enterocytes (Drenckhahn, D., and R. Dermietzel. 1988. J. Cell Biol. 107:1037-1048) suggesting a potential role mediating vesicle motility. We now report that myosin-I is associated with Golgi-derived vesicles isolated from cells that are rapidly assembling brush borders in intestinal crypts. Crypt cells were isolated in hyperosmotic buffer, homogenized, and fractionated using differential- and equilibrium-density centrifugation. Fractions containing 50-100-nm vesicles, a similar size to those observed in situ, were identified by EM and were shown to contain myosin-I as demonstrated by immunoblotting and immunolabel negative staining. Galactosyltransferase, a marker enzyme for trans-Golgi membranes was present in these fractions, as was alkaline phosphatase, which is an apical membrane targeted enzyme. Galactosyltransferase was also present in vesicles immuno-purified with antibodies to myosin-I. Villin, a marker for potential contamination from fragmented microvilli, was

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TITLE: Giantin, a novel conserved Golgi membrane protein containing a cytoplasmic domain of at least 350 kDa.

AUTHORS: Linstedt AD; Hauri HP

AUTHOR AFFILIATION: Department of Pharmacology, University of Basel, Switzerland.

SOURCE: Mol Biol Cell 1993 Jul;4(7):679-93

CITATION IDS: PMID: 7691276 UI: 94003504

ABSTRACT: The Golgi complex consists of a series of stacked cisternae in most eukaryotes. Morphological studies indicate the existence of intercisternal cross-bridge structures that may mediate stacking, but their identity is unknown. We have identified a 400-kDa protein, giantin, that is localized to the Golgi complex because its staining in double immunofluorescence experiments was coincident with that of galactosyltransferase, both in untreated cells and in cells treated with agents that disrupt Golgi structure. A monoclonal antibody against giantin yielded Golgi staining in one avian and all mammalian cell types tested, indicating that giantin is a conserved protein. Giantin exhibited reduced mobility on nonreducing sodium dodecyl sulfate-polyacrylamide gel electrophoresis, was recovered in membrane fractions after differential centrifugation or sucrose flotation, and was not released from membranes by carbonate extraction. Thus, giantin appears to be an integral component of the Golgi membrane with a disulfide-linked lumenal domain. Strikingly, the majority of the polypeptide chain is cytoplasmically disposed, because large (up t 350 kDa) proteolytic fragments of giantin could be released from intact Golgi vesicles. This feature, a large contigu us cytoplasmic domain, is present in the calcium-release channel of muscle that cross-bridges the sarcoplasmic reticulum and transverse tubule membranes.

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TITLE: Purification and characterization of UDP-N-acetylgalactosamine GM3/GD3 N-acetylgalactosaminyltransferase from mouse liver.

AUTHORS: Hashimoto Y; Sekine M; Iwasaki K; Suzuki A

AUTHOR AFFILIATION: Department of Membrane Biochemistry, Tokyo Metropolitan Institute of Medical Science, Japan.

SOURCE: J Biol Chem 1993 Dec 5;268(34):25857-64

CITATION IDS: PMID: 8245020 UI: 94064664

ABSTRACT: A UDP-N-acetylgalactosamine: Sia alpha 2-3Gal beta 1-4Glc beta 1-/Sia alpha 2-8Sia alpha 2-3Gal beta 1-4Glc beta 1-1ceramide N-acetylgalactosaminyltransferase has been purified to apparent homogeneity from mouse liver. The purification procedure involved differential centrifugation for preparation of Golgi membranes, extraction of the enzyme with Triton X-100, and sequential chromatography on phosphocellulose, UDP-aldehyde adipic acid hydrazone agarose, UDP-hexanolamine-Sepharose, CM-Sepharose, and DEAE-Sepharose. At the phosphocellulose column chromatography step, the recovery of the enzyme activity was less than 25%, but it was enhanced up to 70% when the enzyme assay was performed in the presence of the flow-through fraction from the phosphocellulose column. With this assay, the enzyme activity was found to be quantitatively recovered during all the column chromatographies, the enzyme finally being purified 171,000-fold with a specific activity of 3.6 mumol/min/mg protein. The apparent molecular mass of the purified enzyme is 65,000 daltons. The enzyme exhibits a pH optimum f 7.5-7.9 and requires 2.5-10 mM Mn2+ for the maximal activity. The Km value for UDP-N-acetylgalactosamine is 7 micr M. Among the glycolipids tested as acceptor substrates, NeuGc alpha 2-

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TITLE: Intracellular distribution of kinesin in chromaffin cells.

AUTHORS: Schmitz F; Wallis KT; Rho M; Drenckhahn D; Murphy DB

AUTHOR AFFILIATION: Institute of Anatomy, University of Wurzburg, Germany.

SOURCE: Eur J Cell Biol 1994 Feb;63(1):77-83

CITATION IDS: PMID: 8005108 UI: 94273675

ABSTRACT: In this paper we examined the association of the microtubule motor protein kinesin with organelles in chromaffin cells. Approximately 15% of kinesin was associated with membranes as determined by differential and equilibrium centrifugation on sucrose gradients. Kinesin was not enriched in a particular organelle fraction but cofractionated with a variety of organelle markers including markers for early and late endosomes, smooth and rough endoplasmic reticulum (ER) and the Golgi apparatus. Surprisingly, low amounts of kinesin were present in fractions of purified chromaffin granules. The absence of kinesin from the bulk of chromaffin granules was also indicated by immunostaining of tissue sections. A polyclonal antibody that specifically recognized the 120 kDa kinesin heavy chain labeled predominantly a perinuclear region that is typical for most of the kinesin-binding organelles identified by cell fractionation (endosomes, Golgi, ER). Since these organelles are compartments with high membrane turnover, we speculate that kinesin might be involved in certain aspects of trafficking of these membrane systems.

MAIN MESH HEADINGS: Chromaffin System/*chemistry
Chr maffin System/*cytology

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TITLE: Segregation of MHC class II molecules from MHC class I molecules in the Golgi complex for transport to lysosomal compartments [see comments]

AUTHORS: Peters PJ; Neefjes JJ; Oorschot V; Ploegh HL; Geuze HJ

AUTHOR AFFILIATION: Laboratory of Cell Biology, Medical School, University of Utrecht, The Netherlands.

SOURCE: Nature 1991 Feb 21;349(6311):669-76

CITATION IDS: PMID: 1847504 UI: 91141576

COMMENT: Comment in: Nature 1991 Feb 21;349(6311):655-6
Comment in: Nature 1991 Jul 25;352(6333):288-9

ABSTRACT: Traffic of MHC molecules dictates the source of peptides that are presented to T cells. The intracellular distribution of MHC class I and class II molecules reflects the dichotomy in presentation of antigen from endogenous and exogenous origin, respectively. In human B lymphoblastoid cells, class I molecules are present in compartments constituting the biosynthetic pathway, whereas class II molecules enter structures related to lysosomes during their biosynthesis.

MAIN MESH HEADINGS:
B-Lymphocytes/*metabolism
Histocompatibility Antigens Class I/*metabolism
HLA-D Antigens/*metabolism

ADDITIONAL MESH HEADINGS:
beta-N-Acetylhexosaminidase/analysis
B-Lymphocytes/secretion
Biological Transport
Cell Line, Transformed
Endocytosis/immunology
Golgi Apparatus/metabolism
Herpesvirus 4, Human
Human
HLA-D Antigens/biosynthesis
Lysosomes/chemistry

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TITLE: The biosynthetic pathway of MHC class II but not class I molecules intersects the endocytic route.

AUTHORS: Neefjes JJ; Stollorz V; Peters PJ; Geuze HJ; Ploegh HL

AUTHOR AFFILIATION: Department of Cellular Biology, The Netherlands Cancer Institute, Amsterdam.

SOURCE: Cell 1990 Apr 6;61(1):171-83

CITATION IDS: PMID: 2156628 UI: 90199891

ABSTRACT: We studied the intracellular traffic and subcellular distribution of MHC class I and class II antigens in comparison with a recycling surface glycoprotein, the transferrin receptor (Tfr), in the human lymphoblastoid cell line JY. No internalization was detectable for class I molecules. Class II molecules were internalized but did not recycle. In contrast, Tfr was found to internalize and recycle. The biosynthetic pathway of class II molecules differ from that of class I molecules in that it shows a delay (1-3 hr) in transport from trans-Golgi to cell surface: here it intersects the endocytic route. Immunoelectron microscopy using anti-MHC antibodies revealed the existence of vesicular structures that were intensely labeled for class II molecules. It is proposed that at this site combination of class II molecules with processed antigen could occur.

MAIN MESH HEADINGS:
*Endocytosis
*Genes, MHC Class I
*Genes, MHC Class II
Histocompatibility Antigens Class I/*analysis
Histocompatibility Antigens Class II/*analysis
Membrane Glycoproteins/*biosynthesis

ADDITIONAL MESH HEADINGS:
B-Lymphocytes
Cell Cycle
Cell Line